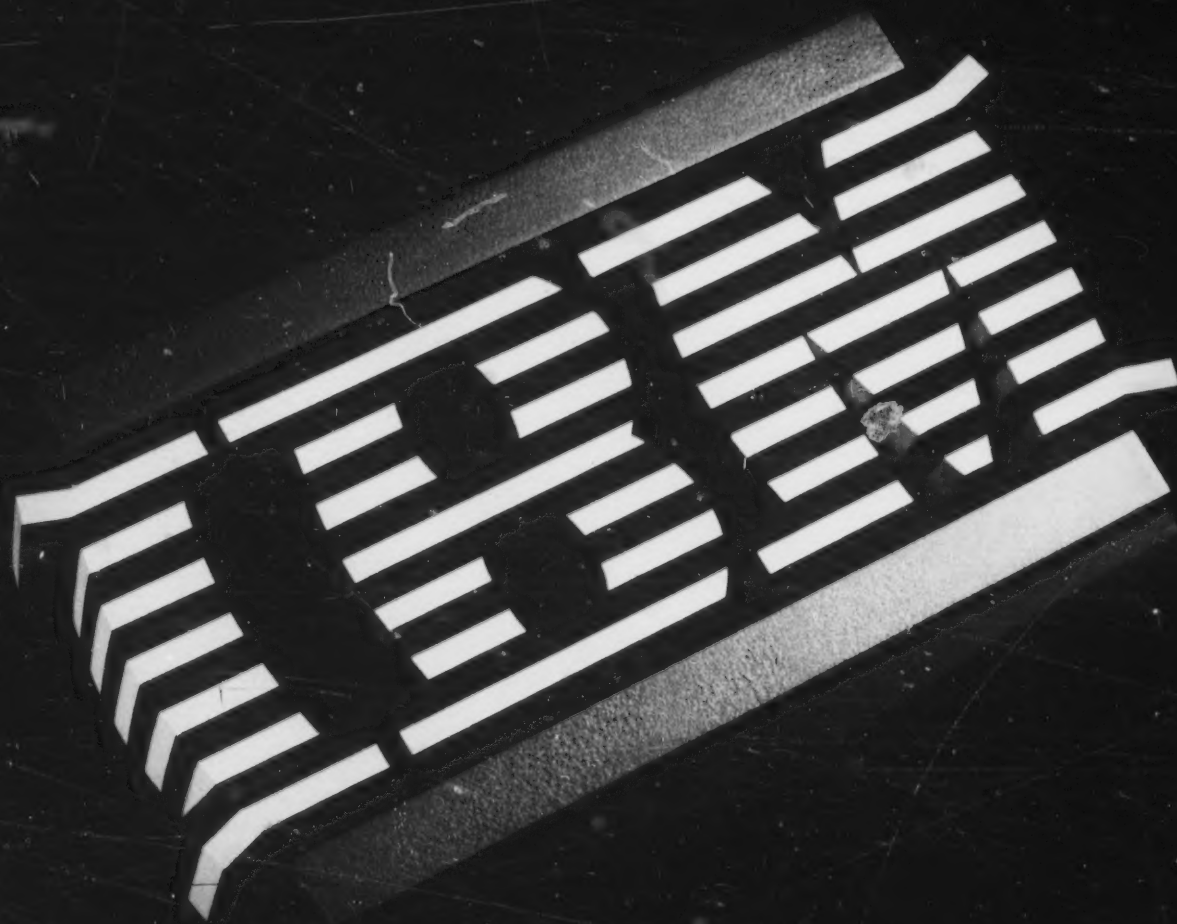


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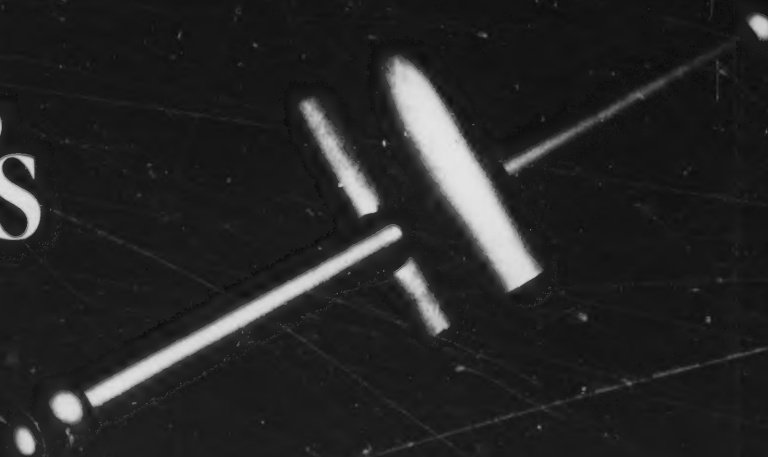
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JANUARY 1987
A CRYSTAL PUBLICATION
INTERNATIONAL EDITION



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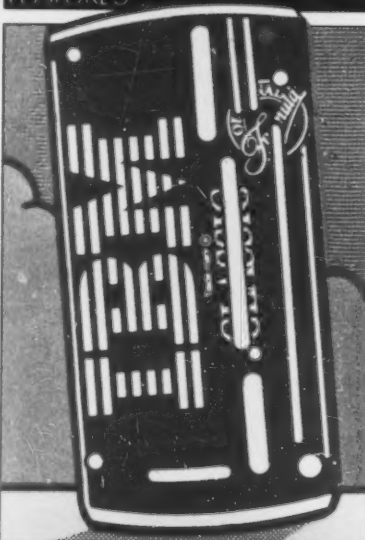
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PHOTOGRAPH BY WALTER WICK;
3-D ILLUSTRATION BY BRUCE MOROZKO

INTERNATIONAL
EDITION

JANUARY 1, 1987
VOLUME 33
NUMBER 1
THIS ISSUE: 192,785
COPIES

Editorial

A New Look

This first issue of 1987 begins DATAMATION's fourth publishing decade. As you have noticed by now, we open our 30th anniversary year with a new look. What you may not yet have noticed is that our new look is the architectural structure of a more reader-friendly information package.

Not unlike the challenge you meet when upgrading your own information processing environment, our task was not a simple one. Nearly a year ago, art director Kenneth Surabian was presented with a seemingly insoluble dilemma: to redesign DATAMATION to provide more information for its readers, making the editorial package easier to access, more tightly organized, and more graphically appealing. The caveat: at all costs, retain and showcase those elements that have made DATAMATION the most important and widely read magazine in its field for the past 30 years.

As you read, you will see he has succeeded.

Starting here on the table of contents, you will find a more informative, easier-to-use guide to our pages. We have expanded our Look Ahead column, and have made it international in scope. News In Perspective has been reformatted to allow more stories with more graphic information. The look of our features has also been redesigned, and each now includes a succinct abstract for a swift appraisal of its contents. A new section called Real Time now consolidates our product coverage and departments.

We unveil our new look with our annual IBM issue. As our special coverage points out, IBM this year—unlike any other in its history—is being faced with its first real challenges for leadership in almost all of its traditional markets. From mainframes—where its 3090s have fared worse than expected—to the midrange—where Digital Equipment Corp. is clearly doing Big Blue one better—the erosion is clear. IBM's personal computer leadership, once assured, is now buffeted by waves from the Pacific basin. In communications and software as well, the giant's once sure hand is questioned. Can IBM reclaim its easy dominance of the industry?

For some answers, here is DATAMATION's fourth annual IBM issue, "IBM: The Pressure's On."



George R. Davis
GEORGE R. DAVIS
EDITOR-IN-CHIEF

ABSTRACT

IBM's initial success in the micro market far surpassed anyone's expectations, including its own. But when demand for PC products slowed, not only did the company feel heat from increased competition, it also felt the shockwaves from the shakeout in all market segments. Big Blue then made its problem at the low end even bigger when it drifted away from the strategies and standard that had made it the undisputed champion in the micro arena. To recapture that title, IBM must rebuild its micro muscle by providing new state-of-the-art offerings and by beefing up its existing wares with value-added features.

Rebuilding Micro Muscle

BY MICHELE S. PRESTON

Once upon a time IBM was the undisputed ruler of the personal computer kingdom. It captured this coveted crown by adopting the strategies that had made its reigning rivals Apple and Tandy the leaders at the low end. But that was some five years ago, and today that crown has slipped because the company itself slipped up on customer support and on products such as the IBM Portable, PCjr, and the PC Convertible. These slip-

ups resulted in substantial market share losses for IBM. To stem those losses and recapture the title, IBM must work at rebuilding its muscle in the micro market.

IBM's initial success in the microcomputer market far surpassed anyone's expectations, including its own.

Several factors were instrumental in that success. First of all, IBM pursued an open architecture approach, which encouraged third-party activity on the applications software and peripherals

Illustration by Richard Anderson



Rebuilding Micro Muscle

front. Second, the company moved one step ahead of the market by adopting Intel's 8088 16-bit technology for its PC products. And third, it capitalized on the micro momentum already started by Apple at the end-user level. To encourage PC purchasing even more, IBM set up dealer networks for retail distribution. Ironically, it is these very strategies that made the PC effort so successful in the early stages that are at the root of IBM's problems today.

The computer giant's winning PC strategy had a profound impact on the market. By the end of 1983, IBM had captured 25% of the \$5.2 billion micro market. In the meantime, IBM-compatible vendors had also gained additional market share. Leaders of the first generation, such as Apple and Tandy, however, suffered serious setbacks as their market shares nosedived.

IBM's big success at the low end enticed other major vendors to enter the market. Taking the PC plunge were Digital Equipment, Data General, Wang Laboratories, Xerox, and AT&T. These companies have had limited success because they never implemented strategies tailored to the unique characteristics of the micro market. Just as IBM missed the boat in the early minicomputer market, the mini makers missed their opportunity in the fledgling micro field.

Meanwhile, venture capitalists, recognizing market opportunities of their own, poured millions of dollars into new PC compatible companies and into software developers, peripherals suppliers, and computer retailers. By the middle of 1983 hundreds of hardware manufacturers were producing compatible products. Some were cheaper than the PC and some offered additional features.

IBM's position remained unaffected by the increased competition from hardware manufacturers hoping to capitalize on the company's open architecture approach and the standard it had created. But when demand slowed, not only did IBM feel the heat from increased competition, but it also felt the shock waves from the shakeout in all market segments. The company further compounded the situation when it began to drift away from the basic strategies that had contributed to its initial success.

One of IBM's major strategies was to incorporate in the PC state-of-the-art 16-bit technology—technology that attracted both developers and users. After the introduction of the PC in August '81 and the PC XT in March '83, IBM came out with several products that had technical

In The Beginning

In August 1981 IBM unveiled the Personal Computer, changing the world of office automation forever. The entrepreneurial Entry Systems Division (ESD), Boca Raton, Fla., implemented strategies that at the time were counter to anything IBM had ever done. The daring division pursued a PC policy that advocated an open architecture, support of third-party software and peripheral developers, and a dependence on retail distribution. The introduction of the IBM PC, which reigned supreme from 1981 to 1983, showed that the team at Boca Raton had clearly done its homework.

A major part of that homework assignment consisted of analyzing the combination of factors that had made Apple computers such a big success at the low end. Perhaps ESD's short development schedule prompted it to veer off the proprietary path and seek third-party sources for key components of the PC architecture. The independent business unit then beat the bushes for a vendor to supply an operating system. ESD ended up with Microsoft, which, after several permutations, produced MS/DOS. The person behind the product was Microsoft chairman Bill Gates, who also helped convince IBM to incorporate a 16-bit microprocessor instead of the eight-bit processor that had been used in PCs.

The 16-bit entry chosen by IBM was the Intel 8088. Since the pacts for the chip and the operating system were nonexclusive, Intel and Microsoft were free to sell their wares wherever and whenever they wanted. They did, and as a result, the IBM/Intel/Microsoft architecture became the industry standard. Hardware vendors, following that standard, flooded the market with compatibles.

The potentially large installed base of PC and compatible products attracted the development talent of application software and peripherals vendors. Knowing that the newest and best applications would be developed first for the compatible systems, users literally put their money on this architecture, further solidifying the standard. Through its open architecture program, IBM aggressively sought the support of third-party developers.

The incorporation of the 16-bit 8088 set the stage for the emergence of the second generation personal computer architecture. The advanced performance of these systems in terms of memory, speed, and support of peripheral devices provided the necessary platform for software developers to produce more advanced business applications. Users, in turn, were able for the first time to see the real productivity pluses of PCs when they fired up such application software packages as the legendary Lotus 1-2-3 and dBase on their PCs.

ESD also broke the Big Blue mold when it decided to distribute its PCs through retail outlets. New dealerships sprang up overnight and the sales force that emerged promoted the IBM Personal Computer more enthusiastically and effectively than IBM's in-house team ever could have. After all, why would IBM salespeople want to sell a \$3,000 PC when they could sell a \$1 million mainframe? Since IBM's direct sales organization was not pushing the PC to the traditional buyer—the MIS manager and dp director—this group continued to ignore the importance of the personal computer in the office. Even mighty IBM didn't realize what a powerful force the little PC would exert in the office market or within the company itself.

BY MICHELE M. PRESTON

weaknesses and were not fully compatible with the standards the company itself had created. As a result, these micros did not attract third-party development and they failed to meet end-user needs.

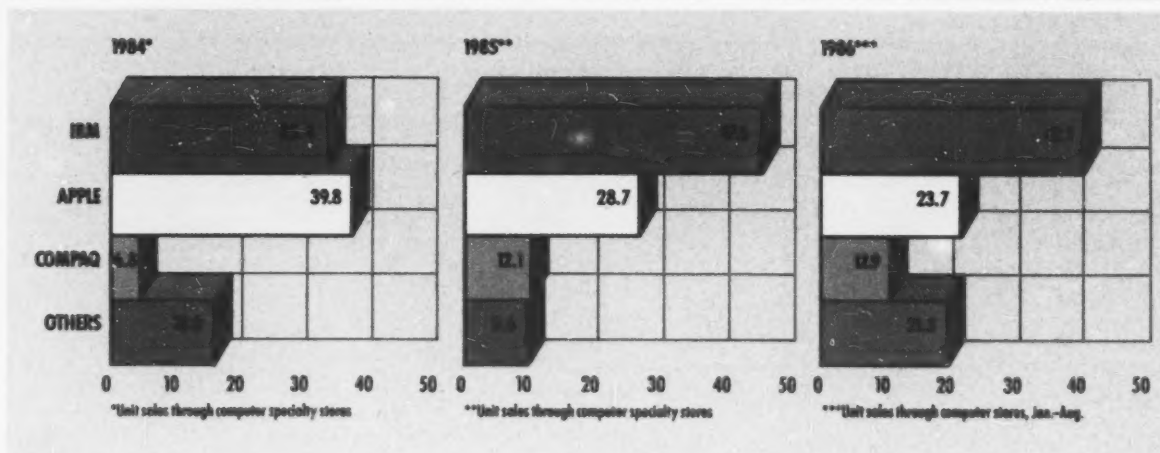
PCjr First on the List

First on that list of market misses was the PCjr home computer, which IBM finally introduced on Oct. 19, 1983, after months of intense industry speculation. The PCjr turned out to be an embarrassing failure for IBM for several reasons. First of all, the ill-fated machine was not

PC-compatible and offered a very short supply of software. Delivery delays also contributed to the product's failure. IBM was unable to ship the PCjr in the fourth quarter of 1983, which turned out to be the tail end of the boom cycle in the home computer market.

The next problem product to appear was the Portable Computer, which IBM unveiled in February 1984. IBM had been convinced by Compaq Computer's success that portability was the way to go. Once again, however, IBM's new micro was not fully compatible with the PC and

FIGURE 1 PC Market Share 1984-1986



it also didn't have features such as dual-mode display that Compaq offered. Approximately 120,000 of these machines were sold before it was discontinued in 1986.

Six months later, IBM took the wraps off the PC AT, which should have signaled the beginning of the third hardware product cycle based on the 32/16-bit architecture of the Intel 80286 microprocessor. Demand for the AT has been strong; it currently represents 20% of IBM's unit shipments. Yet despite that demand, an operating system that takes full advantage of the power of the 80286 chip has yet to be delivered.

During the past four years IBM has introduced other computers with the PC nomenclature, including the 3270 PC, the PC 370, and the RT PC. But these machines have had no real impact on the office market. As a result of this lackluster product performance, the bulk of IBM's PC revenues are still derived from sales of its Intel 8088-based systems.

By not pushing the state of the art, most of IBM's micro business is in the commodity market. The stability of the Intel 8088 architecture has created an opportunity for other vendors, both domestic and international, to gain market share by offering either prices or features that are better than IBM's. In 1985, IBM's unit market share peaked at 47.6%. By the middle of 1986 the company's share had dropped to 42%.

This market share decline coupled with the general slowdown in demand for personal computers has put pressure on this segment of IBM's business. Clone vendors with low-cost production or low-cost operations have gobbled up as much

as 20% of the market by selling compatibles at prices that are as much as 40% cheaper than IBM's. Many of the low-cost production outfits are located in the Far East, while the low-cost operations concerns are usually mail-order distributors. Other firms, like Compaq, have tried to beat IBM at its own game by offering fully compatible products with higher performance. All this knife-sharp competition has done more than shave points off IBM's market share. The clone companies are in fact driving pc prices even lower, which puts still more pressure on revenues.

That pressure would not have been there if IBM had maintained control of the



**THE MICRO
STANDARD
WILL NOT BE
CONTROLLED
BY IBM ALONE.**

PC standard it created, which resulted in the grass roots implementation of microcomputers in office environments. The over 6 million IBM-compatible pcs installed in that environment means that users have made an enormous investment not only in terms of hardware and software dollars, but also in terms of time. These users, who may by now be pushing the limits of these systems, want

an upward migration of the architecture to protect their investment.

Although dp professionals are regaining control of purchasing decisions, the grass roots implementation of pcs that started several years ago has created a sophisticated user base that will continue to demand products that are fine-tuned to their needs. In the past, software developers played a key role in determining the success of hardware architectures. If the most popular applications were not available when needed, users simply did not buy these systems. In the future, the micro standard will not be controlled by IBM alone, but by a combination of interests—users, application developers, operating system suppliers, microprocessor vendors, and hardware manufacturers.

Office Environment Altered

The proliferation of pcs has not only radically altered the office environment, but has also presented corporations with significant problems in trying to tie personal computers into office systems and in supporting such a broad base of users and applications.

IBM is also trying to control its own micro direction. IBM never recognized just how significant the personal computer would be to the office market or to the company itself. As personal computers infiltrated the market, other IBM product and marketing divisions began to feel the impact. Because that impact has turned out to be so broad, microcomputer strategies are now being determined at even higher management levels within IBM.

What does all this mean to IBM's future? The company is at a crossroads. To

Rebuilding Micro Muscle

regain its momentum in the microcomputer industry and recapture market share, IBM must make strategic changes in the way it has operated its personal computer business over the last few years. To begin with, those executives making the strategic decisions at IBM must begin to listen to the needs of end users.

The increasing sophistication of desktop users, combined with growing dissatisfaction among dp professionals, means that IBM's offerings will no longer be blindly accepted simply because they bear the IBM logo. The company must deliver real end-user benefits. The current confusion in the market creates an opportunity for someone—whether it's IBM or a systems integrator such as Electronic Data Systems—to step in and assist corporations in implementing office solutions.

IBM must once again start offering state-of-the-art technology that fulfills a market need. It must also add advanced features to its current systems, creating value that elevates it above the clone companies that compete on a price basis. Such features might include built-in communications protocols that aid micro-to-micro networking, micro-to-mini or micro-to-mainframe communications, graphics facilities that emulate state-of-the-art technology incorporated in Apple's Macintosh, and high-performance storage devices.

Last September Compaq took the lead in evolving the industry standard with the introduction of its Deskpro 386. The company decided to take such a bold

step because it felt there was a need for a micro that delivered 80386-type performance. It also theorized that IBM would not be coming out with its 80386-based system until late this year.

In the meantime, there's been considerable controversy over what IBM's next micro move will be. Most speculate that IBM will come up with a proprietary system to eliminate the problem of clones. Salomon Brothers Inc., on the other hand, believes it is in IBM's interest to follow a value-added approach as Compaq has done in the past. This would conceivably take it out of the league inhabited by its clone competitors.

The distinction between a proprietary system and value added is a fine but important one. In the past, IBM has offered products that have been proprietary in varying degrees. All of them, including the RT PC, PCjr, PC Convertible, TopView, and the PC 370, have been unsuccessful. The reason for their failure was that they did not fulfill a user need. The advantages they provided were not sufficient to compensate for the fact that they could not operate industry-standard software and peripherals because they were not fully compatible. This obviously meant that software and peripheral developers would not commit development resources to machines that they did feel would earn broad enough user acceptance.

Success Depends on Three Factors

Regardless of the route IBM chooses—proprietary or value-added—the success of its new products will depend on three

factors: whether the features meet real user needs, whether the products provide an upgrade path to protect users investment, and whether applications and peripherals users require to customize generic hardware for specific needs are available.

IBM also needs to resolve its micro dealership dilemma. The dealership system has resulted in the overdistribution of PCs, heavy discounting, and the emergence of a gray market of unauthorized agents. This has cut down revenues of even the best value-added dealers—dealers that IBM needs to effectively sell and support its large customer base. In an effort to consolidate distribution, IBM has placed a moratorium on authorizing additional locations. Its Customer Fulfillment Option also creates incentives for large accounts to purchase through the retail channel.

The company must take further steps to improve the quality of its distribution outlets. The majority of computer dealers, who do not have enough expertise to sell and support next-generation systems, will be lost when it comes to marketing the increasingly important total solutions envisioned by IBM in networking, communications, and applications. Even those dealers that do have the expertise are at risk because of the disarray and dissension in their ranks.

IBM must limit distribution of advanced systems to those channels that can provide strong customer support and end-user training. The company must also redefine the roles of these distributors and its own direct salespeople, so that the two sales forces are supporting, not competing with, each other.

Finally, senior IBM management must bite the bullet and determine the relative positioning of micros in the cooperative processing environment the company is attempting to build. IBM must make it clear to its corporate users that it has a cohesive strategy for offering information processing capability in a seamless fashion. Within that seamless framework are cpus, systems software, applications, and of course, communications from the desktop to the departmental work group and from the corporate database to the external database. The management responsibilities for executing such a strategy must be well defined. If so, IBM should be able to pump up its processing muscle in the microcomputer arena. ■

Michele Preston is a vice president at Salomon Brothers Inc. in New York.



Cartoon by Richard Orlin